

Propensity to Outsource and Duration of LSP Relationships: Cultural Differences Between the USA, Germany and Brazil

Undergraduate Honors Research Thesis

The Ohio State University

Rhys Hange

Undergraduate Student of Logistics

Fisher College of Business

The Ohio State University

Columbus, OH 43210

Hange.8@osu.edu

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Abstract

This study examines differences in outsourcing behavior between firms in the United States, Germany and Brazil that use Logistics Service Providers. The idea that cultural influences have a factor in a firm's decision making processes is hypothesized. The hypotheses are tested on 1016 relationships in the three countries using simple linear regression. The results indicate that there are only slight correlations between cultural dimensions and characteristics of LSP relationships. The findings are relevant for practitioners and academics as they continue to gain a greater understanding of the effect that cultural influences have on LSP relationships in which to reference in future research or managerial decisions.

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Dr. A. Michael Knemeyer
Associate Professor of Logistics
Fisher College of Business
The Ohio State University
Columbus, OH 42310

Dr. Martha Cooper
Professor of Marketing and Logistics
Fisher College of Business
The Ohio State University
Columbus, OH 43210

Dr. Keely Croxton
Associate Professor of Logistics
Fisher College of Business
The Ohio State University
Columbus, OH 43210

Dr. John P. Saldanha
Assistant Professor of Logistics
Fisher College of Business
The Ohio State University
Columbus, OH 43210

Vita

Rhys Hange

Bachelors of Business Administration
Major Study of Logistics, International Business
Minor: English
The Ohio State University
Fisher College of Business
June, 2011

Field of Study

Major Field: Logistics and International Business

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Propensity to Outsource and Duration of LSP Relationships: Cultural Differences Between the USA, Germany and Brazil

After waiting in line for what seemed an eternity, the hot sun beating down upon us, we had finally crossed the threshold. The collective excitement of the pressing masses was palpable. We had all journeyed here today, some from halfway around the world, for the same goal, and soon it would be reached. Slowly we were guided into small boats, which cast off into a dark tunnel. As we emerged into a vast cavern we were greeted by sights and sounds that proceeded to overwhelm our senses. Representatives from every conceivable culture country creed, brightly colored and flamboyant, shared with us a vital lesson in a great chorus. Their message spoke to everyone, and as our boats eventually reached the end of the river and we staggered back onto shore, our bodies and minds filled to the brink with the spirit of the message, we knew that which we had just bore witness to would never be forgotten or forsaken. For this was Disneyland, and the message, the indelible stain, imparted unto us by its representatives was that it is a small world, after all.

As the world moves to a global economy, as the once vast oceans shrink in the minds of merchants, and what were previously traditional, national approaches are giving way to cross-border organizations (Stone 2001) logistics expertise is becoming vitally important to many firms. As such, the Logistics Service Provider (LSP), which often provides a more customizable offering, is becoming increasingly important and utilized. In fact, approximately half of total logistics expenditures in Western Europe and the US were aimed at outsourced logistics services (Langley and Capgemini 2009). Exporting and importing are complex activities and utilizing LSPs is ideal for a firm who does not

exhibit strengths in these areas. As the world shrinks, as global trade increases, and as firms develop a need for wider and farther distribution, the role that LSPs play become more important, for they are the facilitators of the ongoing and awaiting growth (Langley et al. 2007).

The nations of the US, Germany and Brazil were selected for this study for several reasons. The primary reason is that these countries are the largest economies in their respective regions and also had the greatest need for logistics services (Klaus and Kille 2007). The influence they have on their region through exporting also makes them excellent candidates. Another reason these three nations were selected was due to cultural differences. Geert Hofstede (2001) has shown that a national culture has a definite impact on corporate culture and business making decisions. While Germany and the US share many economic characteristics (Kaufmann and Carter, 2006) they have many unique cultural traits that are not shared. Continuing with Hofstede's (2001) study, we see that Germany, Brazil and the US have individualism scores that are far enough removed from each other to make using them as a base for comparing outsourcing LSP relationship characteristics valid. We can count on business decision making and relationships to be different among the three countries and cultural theory can provide guidance for recognizing the variations (Wallenburg, Cahill, Knemeyer and Goldsby 2010).

Geert Hofstede (2001) said that "human behavior is not random, but to some extent predictable." Building off of the works of others, the goal of this study is to find if culture has an influence on the relationships firms have with the increasingly important LSPs. Of the five cultural dimensions Geert Hofstede measured, Individualism versus Collectivism is the one utilized in this study. Corporations in countries whose national

cultures are more collectivist or individualistic often have aspects of their corporate culture reflect this. For example, a company in a collectivist society would be more likely to have a compensation strategy that rewarded group performance, and a company in an individualistic society would be more likely to have a compensation strategy that rewarded individual performance. This project attempts to see if this same imprinting extends to logistics-related activities. If a correlation can be found between individualism and propensity to outsource, then a case could be made that the imprinting does extend to logistics-related activities. Although propensity to outsource is dependent on many different variables, such as manager preference or industry, a large enough sample should account for this. On a larger scale, this would be a component in helping to assess just how much national culture is imprinted on corporate culture.

In addition to this study being useful as a base for future research, it can also serve as a reference for LSPs wishing to focus their marketing efforts. A LSP manager may choose to indoctrinate the cultural lessons this study explores into his or her decision making methodologies. For example, should the hypothesis posited by this study that firms in nations with a high individualism score, as found by Geert Hofstede in his landmark studies, outsource logistics activities at a greater rate than firms from collectivist nations, then they may wish to focus their marketing efforts on firms from Western nations, and put less focus on Eastern nations. The same could be said for any of the other hypotheses proposed in this study.

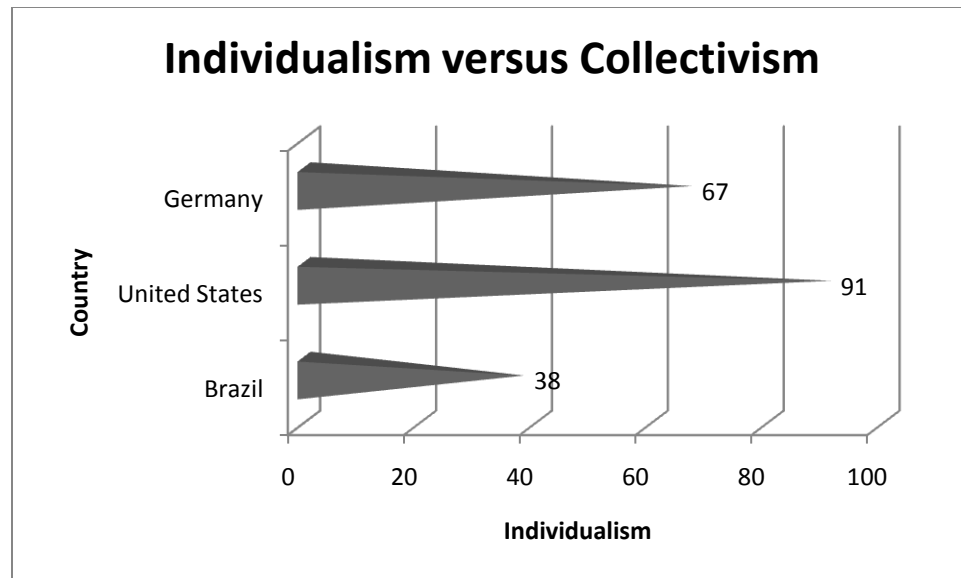
For the purposes of this study, logistics outsourcing involves a relationship between a company and an LSP which, compared with basic logistics services, has more customized offerings, encompasses a broad number of service activities, is characterized

by a long-term orientation, and, thus, has a rather strategic nature (Knemeyer and Murphy 2004).

Literature Review

Of the many papers that also sought to bridge cultural factors and logistics behavior, but none were more helpful than the Wallenburg, Cahill, Knemeyer and Goldsby's 2010 study *Commitment and Trust as Drivers of Loyalty in Logistics Outsourcing Relationships: Cultural Differences Between the USA and Germany*. It was the most influential of my reviews, as the ideas, specifically how values in the workplace are influenced by culture, presented in that work are the basis for this study. Many of the sources in Wallenburg, et. al. (2010) were also utilized in this paper. Klaus and Kille, 2000, and Stone, 2001, in particular, were of great use. They helped to gain a greater understanding of LSPs and the current role they play in the economies of countries throughout the world.

The works of Geert Hofstede were indispensable and had an enormous influence. His 2001 work *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations* is the foundation for much of the rationale behind the hypotheses proposed by this study. The cultural dimensions he painstakingly measured are frequently utilized and the qualitative differences between cultures helped in supporting the hypothesis. While Hofstede had five cultural dimensions, this study uses Individualism/Collectivism, and the complex ideas that go with it. A chart of the Individualism scores for Germany, the US and Brazil can be found below:



Rationale and Hypotheses

Hofstede (2001) has shown that national culture has a distinct effect on business practices. The most individualistic nations, such as the US, Canada, Australia, and the UK have a society with an individualistic outlook and attitude and loose bonds with others in their society. The people are more self-reliant and are expected to be concerned only with themselves and their close family. On the collectivist side are the nations of Taiwan, South Korean, Japan and China. Collectivist societies are societies in which members, from the very beginning of life, are integrated into cohesive groups with strong bonds which will support them while expecting unfaltering loyalty. Everyone is responsible for members of their group and this loyalty takes precedence over other laws or regulations. In collectivist societies, one's firm is certainly their group, and unyielding loyalty to the group is rewarded with protection. Firms also take a much more active involvement in their employees' lives; the company is responsible for the well-being of their employees. In individualistic societies, involvement varies greatly from firm to firm and the level of involvement is an economic calculation and employees are mostly

responsible for themselves. Outsourcing frequently means a firm has to let employees go, and remove their means of making a living and supporting their families. To a person in a collectivist society, who has given their lives to their company, this would be an affront in the highest degree as they expect to have their loyalty rewarded with protection. In fact, the emotional dependence of an individual is on institutions and organizations. Because a firm is seen as a group and individualistic and collectivist societies have very different group dynamics (Hofstede 2001), the following hypothesis is proposed:

H1_{a,b,c}: Individualism score by the user of LSP services is related to the percentage of logistics activities outsourced and will exhibit a strong positive correlation in (a) Brazil, (b) USA and (c) Germany

Members of collectivist societies value relationships, are loyal and dedicated to their group, and give and receive support from fellow members. Members of individualistic societies are concerned more with themselves and value relationships within their group much less (Hofstede 2001). It is because of this that a national culture may have an effect on the relationship of a firm working closely with an LSP, a key component of which may be the duration of the relationship. In light of that, the following hypothesis is proposed:

H2_{a,b,c}: Individualism score by the user of LSP services is related to the duration of relationship with the LSPs and will exhibit a strong positive correlation in (a) Brazil, (b) USA and (c) Germany

As firms grow, they often wish to vertically integrate. This could be by acquiring buyers or suppliers. Another way they may choose to place more of their supply chain

under their control is by having private fleets for transportation or by taking on activities in-house that were previously done by LSPs. There are many benefits, such as cost reduction, product control, and supply chain visibility, should a firm have a strength in those areas. In addition, as firms grow and age they frequently wish to take on additional areas of expertise. Whether through personal employee development or taking on new hires, increasing the depth and diversity of value is something many firms strive towards. This is a characteristic common to firms of all nations, regardless of individualism/collectivism, although the reasons are different. Individualistic nations attach freedom and challenge in results, whereas in collectivist societies training is vital to success (Hofstede, 2001). Due to the need to expand expertise, the following hypothesis is proposed:

H3_{a,b,c}: A firm's size (as measured by number of employees) is related to percentage of logistics activities outsourced and will exhibit a strong negative correlation in (a) Brazil, (b) USA and (c) Germany

When comparing the economic activities of nations, exporting can be a much larger part of some countries' economy than others. There are many factors that play into this, such as accessibility to ports, free-trade agreements, infrastructure, and relative geographic isolation. Because some nations export more than others, international trade, on average, is often more important to the typical firm of those nations. As previously stated, LSPs have an important place in international trade in an increasingly interconnected world (Zhu, Lean and Ying 2002). It would be expected that firms in export-heavy nations, Germany being one of the biggest, have an increased reliance on LSPs than firms in low exporting nations. As such, the following hypothesis is proposed:

H4_{a,b,c}: A nation's exports as a percentage of Gross Domestic Product of the LSP user is related to the percentage of logistics activities outsourced and will exhibit a strong positive correlation in (a) Brazil, (b) USA and (c) Germany

Research Methodology

The research goal of this study is to analyze relationships between LSPs and their customers, and how they differ between cultures, and as such it was necessary to gather data from a large sample of consumers of LSP services. The data were gathered from logistics and supply chain managers at the strategic business level from manufacturing and trading industries. The high managerial level of the respondents helped to ensure accurate responses. They were asked questions regarding their degree of outsourcing and their relationship with their most important LSP. Of the surveys sent, one-thousand sixteen responded. Two-hundred and twenty-three were from Brazilian managers, two-hundred and forty-seven were from US managers, and seven-hundred and ninety-one of the respondents were from Germany. The results of the survey are shown in the tables below:

Propensity to Outsource

What percentage of your logistics activities are outsourced?	United States		Germany		Brazil	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
	45.27	31.73	47.28	30.23	41.45	31.52

Duration of Relationship

What is the duration of your current relationship with your LSP?	United States		Germany		Brazil	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
	3.52	2.25	3.87	3.87	3.50	1.97

Size of Firm						
What is the current size of your firm, as measured by number of employees?	United States		Germany		Brazil	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
	3974.27	15750.13	3566.19	16368.66	1690.35	6779.87

The independent values that were compared against the dependent, percentage of logistics activities outsourced and duration of relationship, were found from two different sources. Individualism/collectivism scores were found using the works of Geert Hofstede (2001). Brazil was found to have a value of thirty-eight, indicating a more collectivist society. The US had a value of ninety-one, the highest individualism score of any nation. Germany's value was sixty-eight, representing a moderately individualistic society. These values were then applied to the firms and used in proving/disproving of hypothesis one and two.

Another important data point was a nation's exports as a percentage of Gross Domestic Product (GDP). Used in hypothesis four, these 2010 data were found by utilizing the CIA World Factbook. For example, in 2010, Brazil had a GDP of \$2.024 trillion and exports to foreign countries totaling \$119.7 billion. This places their percentage at 9.87%. The following table, using 2010 data from the CIA World Factbook, shows the calculations for each nation:

Country	GDP (in \$trillions)	Exports (in \$trillions)	Exports/GDP
Brazil	2.024	0.1997	9.87%
United States	14.62	1.27	8.69%
Germany	3.306	1.337	40.44%

To test the hypotheses, correlations were found from the data using simple linear regression. Hypothesis One, which proposed a positive relationship between individualism and outsourcing, was tested by finding a correlation between a firm's

individualism score, which was assigned by country, and percentage of logistics costs outsourced. To determine if the relationship did exist, a correlation of .50 or greater was proposed as the indicator.

For Hypothesis Two, a correlation was found using the same individualism score as Hypothesis One, but this time ran against the duration of relationship with the LSP. Hypothesis Three was tested by finding a correlation between firm size and percentage of logistic costs outsourced. Hypothesis Four utilized a correlation between Exports/GDP and percentage of logistics costs outsourced. For each of these, as with hypothesis one, a correlation of .50 or greater was the goal. The .50 correlation was selected as that indicates a moderate relationship; one that is neither too weak nor too strong such that the hypotheses become impossible to prove.

Results

Hypothesis one, despite the fact that each country exhibited a very different average percentage of logistics costs outsourced, showed a correlation of only .0438. That weak correlation leaves no choice but to reject Hypothesis one. It came nowhere near the .50 needed to draw a conclusion. In the three nations in this study, the environment firms find themselves in clearly has a much greater bearing on their strategic logistics decisions than the cultural influences of being in an individualistic or collectivist society. Much the same conclusion could be said for Hypothesis two. The correlation between a firm's individualism score and duration of relationship with their most important LSP ended up being .0045. Practically zero, this correlation indicates that duration of relationship is not related to the cultural influences of

individualism/collectivism. LSPs are responsible for their performance, and if that changes or the needs of the customer change, firms, regardless of their in-group loyalty, will not hesitate to end the relationship.

The results of the third hypothesis correctly showed a negative correlation, but was so slight, -.0467, that no conclusions may be drawn from it. In Brazil, the US, and Germany, firm size does not relate to the degree of logistics outsourcing. Although in Hypothesis Four, comparing Exports as a percentage of Gross Domestic Product and percentage of logistics costs outsourced yielded the largest correlation of this study, it still fell well short of the target .50. At .0605, it is very small and Hypothesis Four must be rejected. Being from a nation that exports at a greater rate than other nations does not affect a firm's decision to outsource logistics activities, even if the strategic need for logistics services is, on average, greater.

A summary of the Hypotheses is shown in the table below:

	Independent	Dependent	Correlation	R-Squared
Hypothesis 1	Individualism	% of LOG Costs	0.043805	0.001919
Hypothesis 2	Individualism	Duration	0.004467	2E-05
Hypothesis 3	Firm Size	% of LOG Costs	-0.046722	0.002183
Hypothesis 4	Exports/GDP	% of LOG Costs	0.060464	0.003656

Discussion

Correlations of sufficient strength could not be found when cultural factors were the independent variable, and logistics decisions were the dependent variable. The slight correlations found in this study suggest that logistics activities, in an environment where global trade is increasing, are an extremely important part of a firm's strategic

implementation. In supply chain decisions, the cultural influences tested in this study, such as loyalty to one's group, factor into a firm's decision-making processes very little in Brazil, the US, and Germany. Instead, the firm's unique needs and environment, or perhaps another, yet unknown cultural factor, are what play a part in propensity to outsource and duration of relationships with LSPs. While other areas of business certainly demonstrate being effected (Hofstede, 2001), the broad areas of logistics practices examined in this study do not.

As this paper draws to an end, the limitations of the study must be discussed. The conclusions drawn in this paper can only be applied to the three nations represented in the data: the US, Germany, and Brazil. While the data gathered in those three nations was extensive, there are more parallels to be drawn. Potential future research would extend this study's framework, hypotheses and methodology to include many countries throughout the world. Including the thirty largest economies would be a potential follow-up and continuation. With the inclusion of many nations, the correlations may hopefully be more accurate, better indicative of any actual trend, and likely be much stronger than the slight ones found in this study.

References

- "CIA - The World Factbook." *Central Intelligence Agency*. Web. 12 March 2011.
<<https://www.cia.gov/library/publications/the-world-factbook/geos/br.html>>.
- Hofstede, G. (2001), *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*, 2nd Ed., Thousand Oaks, CA: Sage.
- Kaufmann, L. and Carter, C.R. (2006), International Supply Relationships: Do They Pay Off for Supplier Firms?" *Journal of Marketing*, Vol. 59, No. 1, pp. 1-16
- Klaus, P. and Kille, C. (2007), *TOP 100 in European Transport and Logistics Services: Market Sizes, Market Segments and Market Leaders in the European Logistics Industry*, 2nd Ed., Hamburg: Deutscher Verkehrs-Verlag.
- Knemeyer, A.M. and Murphy, P.R. (2005), "Exploring the Potential Impact of Relationship characteristics and Customer Attributes on the Outcomes of Third-party Logistics Arrangements", *Transportation Journal*, Vol. 44, No. 1, pp. 5-19
- Langley, C.J. van Dort, E., Morton, J., Hoemmken, S., Goh, A., Zabawa, M., Strata, R., and Riegler, M. (2007), *The State of Logistics Outsourcing: 2007 Third Party Logistics – Results and Findings of the 12th Annual Study*, from <http://3plstudy.com>
- Stone, M.A. (2001), "European Expansion of UK third-party Logistics Service Providers", *International Journal of Logistics: Research & Applications*, Vol. 4, No. 1, pp. 97-115
- Wallenburg, Cahill, Knemeyer and Goldsby (2010) *Commitment and Trust as Drivers of Loyalty in Logistics Outsourcing Relationships: Cultural Differences Between the USA and Germany*
- Zhu, J., Lean, H.S., and Ying, S.K. (2002), "the Third-Party Logistics Services and Globalization of Manufacturing", *International Planning Studies*, Vol. 7, No. 1, pp. 89-104